Trade and Industrial Education
Course: Concrete 1
Course Code # 5737
2 Credits

School Year _____

Term:____Fall____Spring

Student:	Grade:
Teacher:	School:
Number of Competencies in Course:	**42**
Number of Competencies Mastered:	
Percent of Competencies Mastered:	

STANDARD 1.0: Students will demonstrate leadership, citizenship, and teamwork skills required for success in the school, community, and workplace.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
1.1	Cultivate leadership skills.		
1.2	Participate in SkillsUSA-VICA as an integral part of instruction.		
1.3	Assess situations within the school, community, and workplace and apply values to develop and select solutions..		
1.4	Demonstrate the ability to work cooperatively with others.		

STANDARD 2.0: Students will take personal responsibility for the safety of themselves, their coworkers, and bystanders.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
2.1	Demonstrate a positive attitude regarding safety practices and issues.		
2.2	Use and inspect personal protective equipment.		
2.3	Inspect, maintain, and employ safe operating procedures with tools and equipment, such as hand and power tools, ladders, scaffolding, and lifting equipment.		
2.4	Continuously respond to potential hazards to self and others.		
2.5	Assume personal responsibilities under HazCom (Hazard Communication) regulations.		
2.6	Assume responsibilities, regulations, and company policies to protect coworkers and bystanders from hazards.		
2.7	Adhere to responsibilities, regulations, and company policies regarding reporting of accidents and observed hazards, and regarding emergency response procedures.		
2.8	Demonstrate appropriate related safety procedures.		
2.9	Pass with 100 % accuracy a written examination relating to safety issues.		
2.10	Pass with 100% accuracy a performance examination relating to safety.	.	
2.11	Maintain a portfolio record of written safety examinations and equipment examinations for which the student has passed an operational checkout by the instructor.		

STANDARD 3.0: Students will interpret, lay out, and fabricate in conformance to construction drawings and written specifications.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
3.1	Interpret dimensions and locations of components that are explicitly dimensioned in construction drawings and written specifications.		
3.2	Interpret plan and elevation views shown in construction drawings.		
3.3	Recognize and correctly interpret lines and symbols commonly used in construction drawings.		
3.4	Make layouts of locations and elevations of concrete structural elements and reinforcements.		

STANDARD 4.0: Students will analyze the composition of concrete mixtures and relate the variations in mixtures to the properties of concrete.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
4.1	Analyze the choices of aggregate available to make concrete and their relative costs.		
4.2	Explain the production methods, chemical reactions, and properties of hydraulic (Portland) cement.		
4.3	Examine the various types of aggregate used to make concrete and their applications.		
4.4	Relate variations in the composition of concrete with the compressive strength of concrete.		

STANDARD 5.0: Students will analyze and apply the design principles of reinforced concrete structural members.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
5.1	Compare and contrast compressive and tensile strengths of materials.		
5.2	Compare and contrast the regions of compression and tension in various beams, columns, and slabs.		
5.3	Relate the placement of reinforcing steel in concrete to the distribution of compression and tension in structures.		
5.4	Quantify the maximum reaction forces and moments that could be developed by simple reinforced concrete beams and columns.		

STANDARD 6.0: Students will demonstrate foundation layout, form construction, and reinforcement placement.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
6.1	Perform site layout based on control points and construction drawings.		
6.2	Construct forms for on-grade slab and beam foundations.		
6.3	Place and secure reinforcement as detailed by construction drawings and specifications.		

STANDARD 7.0: Students will explain and demonstrate techniques for placing concrete.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
7.1	Compare and contrast techniques for moving concrete to the point of placement.		
7.2	Explain and demonstrate the requirements of good artisanship in placing concrete in forms.		
7.3	Explain and demonstrate techniques for consolidating concrete.		
7.4	Explain and demonstrate common hand and power tools and processes to finish concrete.		

STANDARD 8.0: Students will describe and demonstrate techniques for curing concrete.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
8.1	Explain and demonstrate the effects of curing time on ultimate strength and abrasion resistance.		
8.2	Explain and demonstrate techniques for optimum curing under all weather conditions.		

STANDARD 9.0: Students will perform common tests on concrete and components.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
9.1	Perform slump tests and apply acceptance criteria on concrete.		
9.2	Cast, cure, and test concrete samples for compressive strength.		
9.3	Test aggregates for size distribution and density.		

STANDARD 10.0: Students will analyze the loads that act on concrete structures.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
10.1	Analyze vertical loads on masonry structures.		
10.2	Analyze lateral loads on masonry structures.		
10.3	Analyze how masonry structures develop reaction to applied loads.		

Additional Comments_____